

REMARKS

Claims 33-57 and 60 are now in the application. By this Amendment, claims 33-57 and 60 have been amended. Support for the claim features hair spray composition is found at least at page 4, lines 9-12, of the specification. Claims 43, 45-55, and 62-67 have previously been withdrawn by the Examiner. Claims 58, 59 and 61-67 have been canceled without prejudice or disclaimer. No new matter has been added.

Claim 59 is objected to for reciting “and” instead of “or” before the claim feature a hair treatment composition. The cancelation of claim 59 renders this objection moot.

Claims 33-42, 44, and 56-61 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. In particular, claim 33 is rejected because the recitation of a copolymer obtainable by free radical polymerization is considered unclear. Claim 33 has been amended to recite obtained by free radical polymerization instead.

Further, claim 56 is rejected for reciting a broad range and a narrow range. The amendment to claim 56 obviates this rejection.

In addition, claim 61 is rejected for depending on a canceled claim. The cancelation of claim 61 renders this rejection moot.

Claims 33-36, 40-42, and 56-61 are rejected under 35 U.S.C. §102(b) as being anticipated by WO 02/38638 to Dausch et al., as evidenced by US Patent No. 7,015,294 to Dausch et al., which is a US counterpart thereof.

Independent claim 33 recites, among other features, at least one copolymer obtained by free radical polymerization of a monomer mixture comprising tert-butyl acrylate and acrylic acid.

At least this combination of features cannot reasonably be considered to be taught, or to have been suggested, by Dausch.

Dausch teaches acrylate polymers for cosmetic preparations. As set forth at col. 1, lines 54-59, the polymers have a neutral odor and are, therefore, suitable for a wide use spectrum, in particular for formulations without added perfume oils. The objective of Dausch is achieved with acrylate polymers obtainable by free-radical polymerization of

- A) 30 to 99% by weight of tert-butyl acrylate and/or tert-butyl methacrylate,
- B) 1 to 28% by weight of acrylic acid and/or methacrylic acid, and
- C) 0 to 60 % of a further free-radically copolymerizable monomer.

As such, Dausch teaches that one of tert-butyl acrylate and tert-butyl methacrylate and one of acrylic acid and methacrylic acid is copolymerized. However, Dausch fails to teach polymers that mandatorily contain tert-butyl acrylate and acrylic acid, as recited in independent claim 33. Quite to the contrary, Example 1 contains, as set forth at col. 16, line 20, 140 g of methacrylic acid. Acrylic acid is not present. Moreover, all the examples in the Table at Col. 16, line 50 to Col. 17, line 18, are prepared from methacrylic acid but not from acrylic acid.

Accordingly, Dausch fails to anticipate the claimed subject matter because Dausch fails to teach selecting tert-butyl acrylate and acrylic acid as monomers.

Moreover, a skilled artisan would also not be guided by Dausch to select tert-butyl acrylate and acrylic acid as monomers, in particular not for a hair spray, as claimed. As noted at page 4, lines 9-12, of the specification, the claimed subject matter provides a hair spray composition having good rheological properties and good sprayability.

It is a critical feature of the claimed subject matter that tert-butyl acrylate and acrylic acid are selected as monomers, as evidenced by the enclosed Test Report.

Comparative example A is a copolymer that comprises tert-butyl acrylate and methacrylic acid instead of acrylic acid. Inventive Example B contains acrylic acid but has otherwise the same composition as Example A. Further, the enclosed Test Report also includes

examples 13 and 36 already disclosed in the specification. Example 13 contains a mixture of methacrylic acid and acrylic acid, whereas Example 36 contains N-tert butylaminoethyl acrylate as additional comonomer.

The Test Report shows that the inventive examples have a remarkably lower viscosity compared to Example A. The viscosity of Example B is almost half of the viscosity of Example B. Moreover, the inventive examples have a significantly smaller particle size of spray droplets and form a fine droplet pattern, whereas comparative Example A does not exhibit a dissolution into fine droplets. Instead, a coarse droplet pattern is obtained.

Claims 33-40 and 56-61 are rejected under 35 U.S.C. §102(b) as being anticipated by WO 01/62809 to Kim et al., as evidenced by US Patent Application Publication No. 2003/0147929 to Kim et al., which is a US counterpart thereof.

The application of Kim suffers from the same deficiencies as the application of Dausch discussed above. In particular, Kim teaches cosmetic compositions comprising at least one polymer which comprises, incorporated in the form of polymerized units, not more than 50% by weight of at least one tert-butyl ester and/or N-tert butylamide of an α,β -ethylenically unsaturated carboxylic acid and at least one N-vinylamide and/or vinyl lactam and at least one polymerizable compound having a cationic and/or cationic group. However, Kim fails to teach the mandatory use of tert-butyl acrylate and acrylic acid. Some of the polymers listed in Table 1 at paragraph [0240] of Kim include methacrylic acid, but acrylic acid is not used in the examples listed in Table 1. Acrylic acid is listed as one possible monomer at paragraph [0088] of Kim. However, there is no suggestion in Kim to use acrylic acid in combination with tert-butyl acrylate as a comonomer.

Moreover, the skilled artisan is not directed to selecting tert-butyl acrylate and acrylic acid for a hairspray composition, as claimed. Thus, as noted above, Kim fails to appreciate the criticality of the combination of tert-butyl acrylate and acrylic acid for a hairspray composition.

Applicants respectfully request that claims 43 and 45-55 be rejoined upon the allowance of generic claim 33.

In view of the above amendment, Applicants believe the pending application is in condition for allowance.

Applicants believe no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 13111-00043-US1 from which the undersigned is authorized to draw.

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Respectfully submitted,

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Patentanwälte

test report

According to the general preparation method for solution polymerization in ethanol/water (2:1) (specification, page 36, example 15) the following copolymers were prepared:

example	TBA	NtBAM	MAA	AA	NtBAEA	N.G. [%]
A (comparative)	60	20	20	-	-	AMP/95 %
B	60	20	-	20	-	AMP/95 %
13	60	20	12	8	-	AMP/95 %
36	60	12	-	22	6	AMP/95 %

TBA: tert-butyl acrylate
 NtBAM: N-tert-butylacrylamide
 AA: acrylic acid
 MAA: methacrylic acid
 NtBAEMA: N-tert-butylaminoethyl methacrylate
 AMP: 2-amino-2-methylpropanol
 N.G.: degree of neutralization

Hairsprays were formulated with ethanol/water or dimethyl ether (DME):

VOC 55-pump spray:

polymer (30% strength aqueous ethanolic solution)	15
Water	36,7
ethanol	48,3

VOC 55 aerosol hair spray:

polymer (30% strength aqueous ethanolic solution)	15
water	36,7
ethanol	08,3
DME	40

The viscosity of the polymer solutions was measured with a Haake-Rheometer RotoVisco RV20, spindle ST, room temperature. The particle size and spray pattern of the aerosol hair spray was measured with a Malvern Spray Particle Analyzer.

product	N.G. [%]	viscosity [mPas]	particle size [µm] / spray pattern
A (comparative)	AMP/95 %	14,5	75 – 77 / coarse
B	AMP/95 %	7,9	47 – 51 / fine
example 13	AMP/95 %	9,8	52 – 55 / fine
example 36	AMP/95 %	8,2	42 – 46 / fine